

**Introduction to Earth Science** ▪ *Guided Reading and Study***What Is Science?**

*This section explains the skills that scientists use as they observe the natural world. The section also presents the process of scientific inquiry as a means of testing hypotheses and explains the difference between a scientific theory and a scientific law.*

**Use Target Reading Skills**

*After you read this section, reread the paragraphs that contain the definitions of the Key Terms. Use all the information you have learned to write a definition of each Key Term in your own words on the lines below.*

**scientific inquiry**

---

---

**hypothesis**

---

---

**variable**

---

---

**manipulated variable**

---

---

**responding variable**

---

---

**controlled experiment**

---

---

**data**

---

---

**scientific theory**

---

---

**scientific law**

---

---

**Introduction to Earth Science** ▪ *Guided Reading and Study*

**What Is Science?** *(continued)*

**Thinking Like a Scientist**

1. What is science?

---

---

---

2. What are three skills scientists use to learn more about the world?

---

3. What are five important attitudes that help scientists in their work?

---

---

4. What is observing?

---

---

---

5. The senses a scientist uses in observing include sight, hearing, touch, taste, and \_\_\_\_\_.

6. What is inferring?

---

---

---

7. Circle the letter of each item that is true about inferences.

- a. Inferences are based on reasoning from what you already know.
- b. Making an inference involves guessing.
- c. An inference is an interpretation of observations.
- d. People make inferences all the time.

8. Making a forecast of what will happen in the future based on past experience or evidence is called \_\_\_\_\_.

**Scientific Inquiry**

9. Write a sentence that explains what scientific inquiry is.

---

---

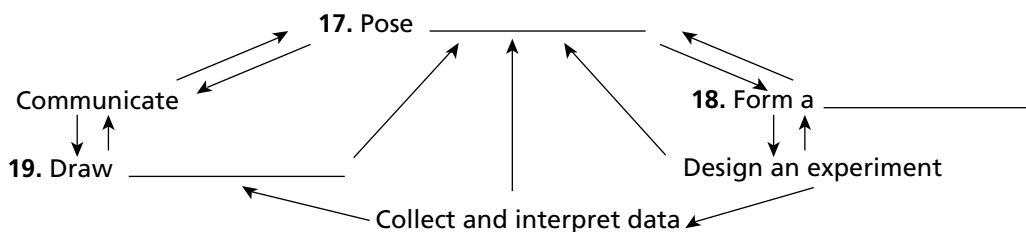
---

10. Is the following sentence true or false? Scientific inquiry often begins with developing a hypothesis. \_\_\_\_\_

## Introduction to Earth Science ▪ Guided Reading and Study

11. Circle the letter of each sentence that is a scientific question.
  - a. At what temperature does water boil?
  - b. When does the sun rise on April 3?
  - c. How can my team work better together?
  - d. Why does she like science more than he does?
12. A(n) \_\_\_\_\_ is a possible explanation for a set of observations or answer to a scientific question.
13. Is the following sentence true or false? Scientists consider a hypothesis to be a fact.  
\_\_\_\_\_
14. To test a hypothesis, a scientist designs a(n) \_\_\_\_\_.
15. The facts, figures, and other evidence gathered through observations are called \_\_\_\_\_.
16. A(n) \_\_\_\_\_ is a summary of what you have learned from an experiment.

Complete the Nature of Inquiry diagram by filling in the blanks.



20. Why is scientific inquiry a process with many paths, not a rigid sequence of steps?  
\_\_\_\_\_  
\_\_\_\_\_
21. In scientific inquiry, what is communicating?  
\_\_\_\_\_  
\_\_\_\_\_

## Scientific Theories and Laws

22. What is a scientific theory?  
\_\_\_\_\_  
\_\_\_\_\_
23. Is the following sentence true or false? Future testing can prove a scientific theory to be incorrect. \_\_\_\_\_
24. You can think of a(n) \_\_\_\_\_ as a rule of nature.
25. How is a scientific law unlike a scientific theory?  
\_\_\_\_\_  
\_\_\_\_\_